

Appl. No. 10/748,315
Amdt. Dated August 7, 2006
Reply to Office Action of July 20, 2006

REMARKS

Claims 2, 5-9, 11-12, and 16-17 remain unchanged from the response filed June 14, 2006. Claims 1 and 15 are amended to both include the subject matter of originally filed claim 4 therein. Claims 10 is amended to include the subject matter of originally filed claim 14 therein. Claims 3-4 and 13-14 are canceled without prejudice.

Claim Rejections Under 35 U.S.C. 103

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 6,283,602 B1, hereinafter also referred to as Kawaguchi et al '602) in view of Ruda et al (US 5,745,519, hereinafter also referred to as Ruda et al '519).

In response to the rejection of claim 1, Applicant has amended claim 1 to include the subject matter of originally filed claim 4 and canceled claim 4 without prejudice and otherwise submits that amended claim 1 is unobvious and allowable over Kawaguchi et al '602 in view of Ruda et al '519. Specifically, with respect to claim 1, as amended, recites in part:

[A] surface lighting device for a display device, comprising:
a micro-lens located between the point light source and the light incident surface, the micro-lens being configured for collimating divergent rays emitted from the point light source into parallel rays, the micro-lens comprising a concave surface facing the point light source and a convex surface opposite to the light incident surface;

The Examiner admitted that Kawaguchi et al '602 fail to teach that "the micro-lens (or lens) collimating divergent rays (or light beams) emitted from the point light sources into parallel rays (or are rendered into non-divergent rays)". The Examiner then attempted to cite Ruda et al '519 as a secondary reference to modify Kawaguchi et al '602 in order to arrive at the "surface lighting device", as set forth in amended claim 1.

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However, Kawaguchi et al '602, in the "BACKGROUND OF THE INVENTION", discloses that a lighting device has a planar light guide 101 and point-source lights 102; the light emitted from the point-source lights 102 is diverged by lenses 103 each having a concave surface facing the point-source light 102. Thus, taken in its own context, the goal of the device described in the Background is, in fact, to diverge the light emanating from the point-source lights 102. Accordingly, if it is this device that the Examiner intends to modify, as Page 2 of the Final Office Action implies, and not the actual invention of Kawaguchi et al '602, then there would be no motivation to modify the Background device to instead use a lens that would instead result in the collimation of light, as per Ruda et al. (e.g., Figs. 2-4). In particular, Applicant submits that MPEP §2143.01, Part VI, and the case law cited thereat, applies, as that section addresses the non-obviousness of a combination that would render a reference unsatisfactory for its intended purpose.

However, if the invention of Kawaguchi et al '602 is actually being modified, the Background actually goes on about problems associated with the use of lenses having a concave surface in this sort of lighting device. Specifically, Kawaguchi et al '602 note that lighting by such a device is restricted to predetermined angular areas A (see column 1, lines 25-40; and FIG. 10 of Kawaguchi et al '602). Kawaguchi et al '602 further contend that such lenses 103 result in the lighting device not being able to achieve a uniform luminance level. Further, in each of the inventive embodiments of Kawaguchi et al '602, as seen from Figs. 1 and 3-7, the point light source is clearly positioned next to a flat light-entry surface. As such, Applicant submits that Kawaguchi et al '602 teaches away from (see MPEP §2141.02, Part VI, and the case law cited thereat) a lighting device that incorporates a micro-lens (or lens) which includes a concave surface facing a point light source therein to achieve a uniform luminance level.

Therefore, no matter which of the above interpretations regarding

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Kawaguchi et al '602 is used, Applicant submits that there is no teaching or suggestion to those skilled in the art at the time to make the claimed invention of "the surface lighting device comprising: ... a micro-lens ... configured for collimating divergent rays emitted from the point light source into parallel rays, the micro-lens comprising a concave surface facing the point light source and a convex surface opposite to the light incident surface", as set forth in amended claim 1, by modifying the lighting device of Kawaguchi with the micro-lens (or lens) of Ruda et al '519.

Accordingly, Applicant submits that such a "surface lighting device", as set forth in amended claim 1, is novel and unobvious over Kawaguchi et al '602 in view of Ruda et al '519, or any of the other cited references, taken alone or in combination, and thus should be allowed. Reconsideration and withdrawal of the rejection of claim 1 and allowance of such claim is respectfully requested.

In response to the rejection claims 2-7, Applicant has canceled claims 3-4, the rejection of such claims 3-4 is moot. Further, Applicant submits that claims 2 and 5-7 depend upon allowable amended claim 1. Therefore, claims 2 and 5-7 should also be allowable. Reconsideration and withdrawal of the rejection of claims 2 and 5-7 and allowance of these claims is respectfully requested.

In response to the rejection of claim 10, Applicant has amended claim 10 to include the subject matter of originally filed claim 14 and has canceled claim 14 without prejudice and otherwise submits that amended claim 10 is patentable over Kawaguchi et al '602 in view of Ruda et al '519 for reasons similar to those asserted above in relation to amended claim 1. Claim 10, as amended, recites in part:

[A] liquid crystal display device comprising:

...

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point light sources for emitting light beams;

...
micro-lenses for coupling the light beams from the point light sources into the light incident surface, each of the micro-lenses comprising a concave surface facing a corresponding point light source and a convex surface opposite to the light incident surface.... (Emphasis added.)

Accordingly, Applicant submits that such a "liquid crystal display device", as set forth in amended claim 10, is novel and unobvious over Kawaguchi et al. '602 in view of Ruda et al '519, or any of the other cited references, taken alone or in combination, and thus should be allowed. Reconsideration and withdrawal of the rejection of claim 10 and allowance of such claim is respectfully requested.

In response to the rejection claims 11-14, Applicant has canceled claims 13-14, and the rejection of such claims 13-14 is moot. Further, Applicant submits that claims 11-12 depend upon allowable amended claim 10. Therefore, claims 11-12 should also be allowable. Reconsideration and withdrawal of the rejection of claims 11-12 and allowance of these claims is respectfully requested.

In response to the rejection of claim 15, Applicant has amended claim 15 to include the subject matter of originally filed claim 4 and otherwise submits that amended claim 15 is patentable over Kawaguchi et al '602 in view of Ruda et al '519 for reasons similar to those asserted above in relation to amended claim 1. Claim 15, as amended, recites in part:

[A] surface lighting device for a display device, comprising:
a light guide plate having a light incident surface;
at least one light source opposite to the light incident surface;
and

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a lens ... for collimating divergent rays emitted from the light source into non-divergent rays, the lens comprising a concave surface facing the at least one light source and a convex surface opposite to the light incident surface... (Emphasis added)

Accordingly, Applicant submits that such a "surface lighting device", as set forth in amended claim 15, is novel and unobvious over Kawaguchi et al. '602 in view of Ruda et al '519, or any of the other cited references, taken alone or in combination, and thus should be allowed. Reconsideration and withdrawal of the rejection of claim 15 and allowance of such claim is respectfully requested.

In response to the rejection claims 16-17, Applicant submits that claims 16-17 depend upon allowable amended claim 15. Therefore, claims 16-17 should also be allowable. Reconsideration and withdrawal of the rejection of claims 16-17 and allowance of these claims is respectfully requested.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al and Ruda et al as applied to claims 1-7 and 10-17 above, and further in view of Koyama et al (US 6,533,440). However, such claim 8 depends upon amended claim 1, and amended claim 1 is in condition for allowance for the reasons set forth above. Accordingly, Applicant submits that claim 8 is also in condition for allowance, the allowance of which is hereby respectfully requested.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al and Ruda et al as applied to claims 1-7 and 10-17 above, and further in view of JP 2002-93222. However, such claim 9 depends upon amended claim 1, and amended claim 1 is in condition for allowance for the reasons set forth above. Accordingly, Applicant submits that claim 9 is also in condition for allowance, the allowance of which is hereby respectfully requested.

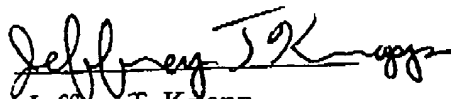
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Conclusion

In view of the foregoing, the present application, as claimed and defined in the pending claims 1-2, 5-12, and 15-17 is considered to be in condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,

Tai-Cheng Yu et al.

By 
Jeffrey T. Knapp

Registration No.: 45,384

Foxconn International, Inc.

1650 Memorex Drive

Santa Clara, CA 95050

Tel. No.: 714/626-1229